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OPERATIONS ON THE ENLARGED PROSTATE, WITH A TABULATED SUMMARY OF CASES.

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It is common knowledge that in a considerable number of subjects of prostatic enlargement palliative measures—hygiene and the intelligent use of the catheter—are inadequate to avert or to remedy a fatal cystitis and consecutive pyelo-nephritis. These cases were formerly regarded as virtually beyond surgical aid; aside from the relief of retention by the catheter, or when that failed by puncture, they were abandoned as hopeless. The rise of vesical surgery in the last decade furnished among its early achievements the complete relief of prostatic cystitis by temporary drainage of the bladder, now a standard operation.

Yet this measure, though extremely gratifying in its immediate results, is in theory unsatisfactory and in practice but too often of only temporary benefit. The relief so obtained is of uncertain tenure; the factors which originally induced the malady remain undisturbed; they may, and as experience shows they often do, cause a recurrence of the vesical inflammation. A rational procedure should aim to secure not merely cessation of existing cystitis, but also, by removal of the cause, prevention of its recurrence—a radical instead of a palliative operation. Various measures have been practised to secure this result, especially during the past five years; it is the purpose of this writing to collate these experiences in order that a definite plan of procedure in such cases may be deduced, so far as present knowledge justifies such deduction.[1]

The simplest method of affording lasting relief is evidently the formation of a permanent suprapubic artificial exit, which avoids the obstructing prostate. This measure has been often executed in the past half-century, usually by puncture with a trocar, sometimes by cystotomy, a tube being more or less constantly worn subsequently.[2] To obviate the frequent dribbling of urine and the wearing of a plug, McGuire, of Richmond, has in eight cases made the fistula run obliquely from the lower end of the vesical wound to the upper angle of the cutaneous incision, some three or four inches long, and bearing "the same relation to the bladder that the spout of a coffee-pot does to the bowl." By this ingenious arrangement the urine can be completely retained, he says, from two to six hours. Morris, of New York, has in one case clothed the fistulous track with skin by transferring narrow cutaneous flaps into the wound at the time of operation, thereby securing a better lining for the fistula and diminishing its tendency to spontaneous closure. (*N. Y. Med. Journ.*, July, 1890.)

The permanent suprapubic fistula is a mutilation obviously to be employed only when the restoration of the urethral channel seems impracticable. Aside from the objections on the score of sentiment and comfort, the fistula cannot be relied upon to secure immunity from cystitis; thus Bennett May mentions three instances of such failure in his own practice. The explanation of the failure is perhaps that the projecting portions of the prostate prevent complete evacuation of the vesical contents; and probably that these tumors, like other neoplasms and foreign bodies, induce mechanical irritation of the bladder. The latter condition seems to have been exemplified in one of May's cases, which, after the fistula had failed to give relief, was entirely cured by the removal of a large middle lobe.

The theory of the radical operation assumes that the cause of chronic retention is mechanical obstruction by the enlarged prostate; that such prostatic obstacles are capable of removal; and that after such removal the bladder will resume its function of voluntary evacuation.

These propositions have been separately and collectively denied by three of the foremost among living genito-urinary surgeons—Thompson, Guyon, and Socin. Guyon[3] maintains as a deduction from histological researches that prostatic enlargement is but a local manifestation of a general senile "sclerosis," which pervades the entire urinary tract; that the chronic retention is chiefly due not to prostatic obstruction but to the coincident impairment of vesical contractility caused by sclerosis of the bladder muscles; hence that the removal of prostatic obstacles is irrational and futile to restore voluntary urination. He asserts further as the result of post-mortem observation that the prostatic obstacle is rarely of such contour as to permit its removal by the surgeon. Socin advances essentially the same opinions. Thompson, while repudiating sclerosis as the cause and assuming that enlargement of the prostate is an attribute of senility, endorses Guyon's conclusions.

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[1] To the many surgeons who kindly responded to a request for their personal experience, as well as to the editors of medical journals who assisted him in the collection of information, the writer desires to express his deep appreciation of the courtesy received.

[2] "Supra-pubic Cystotomy for Purposes other than the Extraction of Calculus," by J. H. Packard, Trans. Amer. Surg. Assoc., 1887, contains an extended account of these operations.

[3] Annales des Mal. des. Org. Gén.-urin., March, 1885.

These are, however, conjectures unsupported by clinical experience. Thompson and Socin have not yet performed—or at least have not published—a single radical operation; Guyon made his first attempt in July, 1889, and found a prostatic growth readily removed.

The accumulated clinical observations of the past five years prove that these traditions of the earlier surgeons, upheld by Guyon and Thompson—which have dominated surgical opinion and practice—must be restricted to a minority only of prostatics.[1] For it is clearly demonstrated—

(1) that there is a larger class, entirely distinct from these, in whom the failure to evacuate the bladder is due in no wise to degeneration of the vesical muscles, but solely to the mechanical obstruction offered by prostatic growths; since the removal of such obstacles has been followed in over two-thirds of the cases previously dependent upon the catheter, by restoration of the vesical functions.

(2) It is shown that the enlargement of the prostate commonly called "senile" hypertrophy is not limited to advanced life. Thompson has strenuously taught that "it never appears but in advanced years," the minimum age being fifty-six; "I have never been able to meet with an instance of its occurrence at so early a period as fifty-three years of age."[2] Many others have seen it in younger men: McGill removed a prostatic collar, "the size of a large walnut," from a man aged fifty-three; M. Schmidt, a large middle lobe from a man of fifty-two; the writer has removed a prostatic growth from a patient aged forty-nine; Dunn excised a tumor of the lateral lobe from a man of forty-five; Iversen described a case at thirty-six years, which Güterbock says is no rarity. H. G. Mudd, of St. Louis, exhibited to the Association of Genito-urinary Surgeons, June 3, 1890, an extreme example of prostatic hypertrophy

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[1] The writer takes the liberty of using this word to avoid the frequent circumlocution —"subjects of cystitis with prostatic hypertrophy;" the German *prostatiker* and French *prostatique* have long been standard equivalents. The term "prostatism" is also a needed designation for the condition discussed.

[2] Diseases of the Prostate, 1886, pp. 92, 93.

from a negro aged twenty-seven; the prostate and its outgrowths literally filled the true pelvis, and on microscopical examination were found to be fibro-myomatous without a suspicion of malignancy. On the same occasion Dr. Mudd mentioned a case of true prostatic hypertrophy, under the observation of Dr. H. H. Mudd and himself, in a child of five years.

(3) That the prostatic obstruction is usually—contrary to the opinions of Guyon and Thompson—of such form as to permit excision, is shown by the fact that in sixty-two out of seventy-seven cases of supra-pubic incision, such obstacles were found and removed. These tumors when microscopically examined have been reported as fibro-myomata, enclosing more or less glandular structure.

The assumptions upon which the radical operation is based are therefore justified by experience; it is proven that in many prostatics the source of the evil is to be sought not in sclerosis nor senile degeneration of the bladder, but in mechanical obstruction by prostatic tumors; that these tumors are not a product of sclerosis, nor of senility, nor even limited to advanced life; their greater frequency after forty years of age is paralleled by that of other tumors, particular the fibro-myomata of the homologous organ, the uterus[1]—which are not considered an attribute of senility; that these tumors are in most instances susceptible to removal; and that in such cases a well-executed radical operation restores voluntary urination.

It is indisputable, however, that in many prostatics of advanced age a degeneration of the vesical walls coexists; the contractility of the bladder is seriously impaired, and removal of the prostatic obstruction fails to restore voluntary evacuation of the organ. The proof of this condition is furnished, as Guyon points out, by occasional cases of chronic retention and cystitis in elderly men *without* prostatic obstruction or other mechanical obstacle; the failure to evacuate the bladder being due simply to impairment of the vesical contractility. In nearly one-third of the cases on record the radical operation failed to restore voluntary urination; while in several it is evident that the removal of the obstacle was incomplete, yet in others the explanation of failure seems to have been impaired vesical contractility.

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[1] The structural identity of prostatic tumors with uterine fibroids has been demonstrated in the last half-century by various surgeons and pathologists, including Velpeau, Paget, and Billroth. The clinical analogy seems equally striking; rare in young women, the frequency of uterine fibroids increases with age until at the climacteric the percentage fully equals that of the corresponding prostatic disease in elderly men (Bayle, Klob). With the cessation of the uterine function, the formation and growth of fibroids usually cease.

Since the functional activity of the prostate persists later in life than that of the uterus, its tumor-formation naturally continues to a more advanced age, ceasing, however, at sixty-five to seventy. The climax of this tumor-formation may be contemporaneous with, though independent of, the senile degenerations permeating the urinary tract, as well as other tissues; the occurrence of both in the same subject seems a pure coincidence.

Differentiation between the obstructive and degenerative factors in a given case should naturally precede operative measures. At present such differential diagnosis cannot always be accurate; the subject of pronounced sclerosis exhibits rigid arteries, polyuria, and often hæmaturia (Guyon); his prostate is extremely hard; the flow of urine through the catheter is feeble; complete evacuation of the bladder is accomplished only by pressure upon the hypogastrium. In the presence of these symptoms restoration of voluntary micturition cannot be expected; the radical operation is useless except to facilitate difficult catheterism—unless, indeed, Kümmell's success in gradually restoring vesical contractility by means of strychnine and electricity, shall be found frequently capable of repetition.

Modes of Operation.—Prostatic obstacles to urination have been attacked by four routes:

1. The urethra (Mercier, Bottini).
2. Perineal incisions (Harrison, Keyes).
3. Supra-pubic cystotomy (Dittel, Belfield, Kümmell, McGill).
4. Combined perineal and supra-pubic incisions (M. Schmidt, Belfield).

The operation should secure three results: restoration of a low-level urethra by removal of prostatic obstacles; temporary drainage of the bladder; and stretching of the prostatic urethra. The choice of operation is, therefore, a mechanical problem, determined largely by the accessibility of the prostatic obstruction. Now, these present the greatest diversity in size, shape, and location; whether the obstruction is a distinct tumor, median or lateral, sessile or pedicled, intra-vesical or intra-urethral; or a so-called bar; or a combination of these—can be in only exceptional cases more than conjectured by any means other than digital contact, which is, therefore, the first essential of every accurate radical procedure.

This condition obviously excludes from serious consideration all operations from the meatus, and shows the limitations of operations through any perineal incision, since the average finger is too short to explore or even to reach the vesical orifice from the perineum when the prostate is much enlarged. Operations from the meatus are evidently, in the light of present experience, tentative, haphazard procedures; they were based upon the faulty conception that the prostatic obstacle is always a bar or other median obstruction; and that the division of this supposed bar would effect relief. A scrutiny of the appended cases shows how seldom such a procedure could have removed the obstacle to urination. These operations of Mercier secure no one of the three essentials sought; they contain, moreover, elements of danger foreign to the later procedures where the cutting-edge in the bladder is directed and controlled by digital contact. Although Mercier is said to have operated over four hundred times, but little definite knowledge of his results is procurable; his followers have been few and his operations seem now to possess only historic interest. Bottini's modification of Mercier's operation—the substitution of a cauterizing- for a cutting-edge—is equally unsatisfactory and seems to have found no adoption; though in a letter dated May 8, 1890, Prof. Bottini kindly writes that he has performed it in sixty-four cases, with "entire success in fifty-four, imperfect in four, and in six without profit."

That *lateral perineal cystotomy* affords a means for the removal of prostatic outgrowths is shown in the repeated occurrence of this accident—for it was always unintentional and undesired—to Ferguson, Gross, Cadge, Williams, and other lithotomists for generations back. More recently a median tumor discovered during lithotomy has been in several instances intentionally removed (Dittel, Keyes, Landerer, Billroth, Frank). Prostatectomy by this route seems, however, never to have been practised except as an incident to lithotomy; the extensive incision appears to have no compensatory advantage over less formidable and more satisfactory modes of approach.

Perineal urethrotomy has been employed in some thirty cases as the avenue of access to the prostatic obstacle; small median tumors ("middle lobes"), transverse muscular bands, and lateral lobes have been incised or excised. Yet many cases are not susceptible to satisfactory operation by this incision; the finger often fails to explore the vicinity of the vesical orifice when the prostatic urethra is greatly lengthened and the rigidity of the prostate seriously restricts the use of instruments passed with the finger through this incision.

The surgeon may therefore fail to detect the obstructing portion, or find its removal impossible. Thus Wishard was unable to remove the obstruction by perineal urethrotomy, but subsequently found and excised a median tumor by a suprapubic incision. J. D. Thomas failed to detect during perineal prostatotomy a large lateral outgrowth which was discovered at the autopsy two years later (personal letter). McGill says that "in only three of the twelve cases on which I have operated would it have been possible satisfactorily to remove the projecting portions of the prostate by the perineal incision."

In Case 9 of the table the writer failed to determine the outline of the obstruction tunnelled from the perineum; at the autopsy seven months later, the obstacle was found to be a median tumor, having the size and shape of a walnut, with a relatively small attachment; it could have been readily removed by suprapubic cystotomy, a fact which induced the adoption of this incision in subsequent operations. Possibly the failure of perineal operations to restore voluntary urination has in various instances been due to incomplete operation, the surgeon failing to discover the extent of obstruction.[1]

Since the perineal incision will certainly fail in a large percentage of cases to afford access to intra-vesical obstacles, and since it is impossible to distinguish in advance the cases suitable from those inoperable by this incision, it is apparent that a better method, one applicable to every case, is required.

Suprapubic cystotomy seemed at first to fulfil every requirement; it secures minute exploration of the entire vesical surface of the prostate, the easy recognition and complete removal of the intra-vesical projections, and thorough drainage of the bladder. Prostatectomy[2] by this incision has been performed over eighty times with satisfaction to the operator and often with results most gratifying to the patient. Yet in several instances this operation has failed to detect or to remove the prostatic obstruction; failures which direct attention to the fact—rather obscured by the many brilliant successes in removing intra-vesical growths—that the object is to restore a low-level channel through the prostate, and not simply the excision of salient tumors. To this end exploration of the urethral is quite as important as that of the vesical surface of the prostate. For the canal may be distorted by growths imperceptible or inaccessible from the bladder; especially frequent is a pronounced thickening of the suburethral prostate, whereby the urethra is elongated and the vesical orifice displaced upward. In five cases recorded in the table such a mass has baffled the surgeon who approached it by suprapubic incision; in two (McGill) it could not be satisfactorily removed; in a third (Guyon) the partial removal was insufficient to restore the channel; in the remaining two this obstruction was overcome by perineal incision and stretching (M. Schmidt, Belfield). These cases seem worthy of detailed relation, because they demonstrate the occasional insufficiency of the suprapubic operation to restore a proper channel through the prostate.

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[1] Watson, in his valuable monograph (Operative Treatment of the Hypertrophied Prostate, Boston, 1888), formulated the conclusion from a study of thirty anatomical specimens, that in two-thirds of the cases a radical operation can be thoroughly performed through a perineal urethrotomy by anyone with an index finger of at least three inches working length. The anatomical relations of the prostate in the unopened body are, however, so entirely different from those of the excised and incised specimen that conclusions based upon the latter should hardly be applied to the living subject. Moreover, as McGill tersely observes, "it is unwise to commence an operation with the probability of failing in one-third of the cases;" and "it is not advisable to limit the ability to perform an operation to gentlemen with preternaturally long fingers." It is gratifying to know that Dr. Watson's further clinical experience leads him to restrict to narrower limits the feasibility of the perineal operation (personal communication. June, 1890).

[2] The obvious etymological inaccuracy of this term is still of slight moment, since the real "prostatectomy"—extirpation of the entire prostate—is as yet a rare experiment.

M. Schmidt, after removing a middle lobe by suprapubic incision and inserting a finger-tip into the vesical orifice, found a small but hard mass posteriorly, which was inaccessible from the bladder. Upon recovery the urinary symptoms returned, voluntary urination was still impossible, and the catheter met a distinct impediment in the prostatic urethra—in short, the channel through the prostate was still seriously obstructed. A month later Schmidt reopened the wound, but found no obstruction at the site of the former tumor. He then made perineal urethrotomy, stretched the prostate, and with a bistoury incised the hard mass at the posterior edge of the vesical orifice; perineal drainage was maintained for five weeks, when after a second stretching of the prostate the wound was permitted to close. After this the patient—who had been entirely dependent upon the catheter for a year—recovered the power of normal urination, which continued unimpaired during the time of observation, eighteen months. This carefully-observed case suggests the possibility that the failure to recover the vesical function after suprapubic operation may have been in other cases also due less to an assumed degeneration of the bladder than to a neglect to recognize urethral obstacles whose importance Schmidt so plainly demonstrated.

Guyon's patient was in good general condition, the bladder retaining largely its contractility; voluntary micturition very incomplete and catheterism difficult from prostatic obstruction. Suprapubic exploration showed an enlarged left lobe and a bar connecting the lateral lobes three-fourths of an inch high and one-half of an inch broad; this was found by trial to be the obstacle to catheterism. A portion of the enlarged lobe and of the bar was removed by cautery, after which the catheter entered the bladder readily. Eight weeks after operation catheterism had become as difficult as formerly, the obstruction being located at the same point; voluntary urination was not restored. Guyon believes that the loss of substance in the bar made by the cautery had been filled in by new tissue; and that the prolonged pressure of a perineal tube (à la Harrison) would have averted this result.

McGill reports two nearly duplicate cases in which the prostate is described as "very hard; a small projecting middle lobe blocks up the urethra like a bar. A small piece the size of a pea was removed (suprapubically) with difficulty." The patients derived no appreciable benefit from the operation. The conjecture seems warranted that Guyon's and McGill's cases belong in the same category as Schmidt's; the suprapubic operation removed but part of the obstruction, the remainder being accessible from the perineum only.

In a patient forty-nine years old a mass about the size of a walnut was enucleated from the left lobe after suprapubic incision. The finger inserted into the urethra detected a small mass in the floor of this channel which obstructed a catheter, but could not well be reached from the bladder. The *boutonnière* was accordingly made; the finger introduced from the perineum met the same obstruction. This was incised preparatory to a thorough stretching of the prostate, when the finger, again introduced from below, unexpectedly dislodged the mass and pushed it into the bladder. It was found to be a small, distinct tumor.

Since the operation (four months) voluntary and complete evacuation of the bladder has continued, and the catheter enters easily. This patient had been advised more than a year previously to use the catheter regularly, but because of the difficulty and pain of introduction had made but desultory use of the instrument; urination, though voluntary, had been very incomplete.

It seems, therefore, that by suprapubic incision alone the surgeon may find himself unable to restore the patency of the urethral channel; that the intra-vesical projections may in a given case constitute but a part of the prostatic obstruction; that the discovery and removal of such outgrowths are not necessarily a complete operation. The prostatic urethra should be stretched and explored by the finger; and the discovery of a hard mass or an unduly rigid ring should be the signal for perineal urethrotomy, incision or excision of the resisting tissue, and thorough stretching. Kümmell supplemented the suprapubic excision of tumors by sinking the cautery into the prostatic substance—an imperfect substitute for the perineal operation. It seems probable that the combined operation by both suprapubic and perineal incisions will become the rule rather than the exception; the addition of the *boutonnière* increases but slightly the injury to tissue and the time of anæsthesia, while it affords an access to the entire prostate which may convert an utter failure into a complete success.

RESULTS.—An estimate of the value of radical operations must be based upon a comparison with the results of simple drainage of the bladder; since the latter is included in the former and alone secures cessation of existing cystitis, subsidence of the congestive œdema of the prostate, and an improvement—more or less temporary—in the evacuation of the bladder. The radical operation should accomplish more; it should restore voluntary and complete urination in the individual who has long been largely or entirely dependent upon the catheter. For this estimate many of the 133 reported cases are useless; for in some the previous and subsequent history is not recorded; in others the operation was made for acute retention without previous dependence upon the catheter (where simple drainage would have afforded relief); and in a third class the prostatic enlargement was complicated with a calculus, to whose removal the recovery of the vesical function might be largely ascribed.

Excluding these, there remain 41 cases wherein the catheter was indispensable for periods varying from several months to seven years prior to operation. In 32 of these 41 voluntary urination was restored and maintained during the period of observation, varying from a few months to two years; in only a few is it, however, definitely stated that the evacuation of the bladder was complete as well as voluntary; in several residual urine was noted and the daily passage of the catheter was advised as a precautionary measure. In 9 of the 41 cases voluntary micturition was not restored. As elsewhere observed, it seems probable that the failure in some of these was due to incompleteness of operation.

The mortality of prostatectomy (13.6 per cent.) seems somewhat greater than that of cystotomy in elderly men for other purposes, particularly the removal of calculi; though due to the same causes—uræmia, shock, and irritation of the respiratory tract by the anæsthetic. In other words, the hazard of the operation is entirely due to the preëxisting disease of the urinary tract as well as to the enfeeblement of vitality from age and protracted suffering; and its excess of mortality over lithotomy must be ascribed to the greater delay in operating. In only one case was serious disturbance caused by the local interference with the prostate: Dittel, after removing a median growth with the écraseur, observed suppuration in and around the prostate; the abscess was opened from the perineum by separation of the rectum, after which the patient recovered.

The obvious deduction is that the operation should be performed earlier in the course of the disease, and not as heretofore deferred until the last stage: corroboration of this inference is found in the paradox that operations upon the prostate, complicated with calculus extraction, furnished a much smaller mortality (1 in 26 suprapubic, or 3.8 per cent.) than the uncomplicated prostatectomies (11 in 63, or 17.5 per cent.). A calculus was, therefore, an advantage rather than an injury, since its presence led to early operation.

It is also noteworthy that among the cases complicated with calculus the recovery of voluntary urination is much smaller (52 per cent.) than among the uncomplicated operations upon the prostate (81 per cent.). The explanation, though conjectural, seems to be that the removal of the stone was the principal object; the prostatic operation was usually a mere incident, negligently performed.

Opportunity is still lacking—because the operation is so recent—to determine decisively whether the restoration of voluntary urination is permanently assured; further experience must show whether new tumors may not frequently develop from the unexcised prostate, causing a recurrence of the original morbid condition. Actual observation on this point is limited as follows: (1) In twenty-four cases unobstructed urination and catheterism have persisted for periods ranging from six to thirty-two months after removal of prostatic obstacles; (2) in two cases actual inspection of the bladder three months after operation (Kümmell, M. Schmidt) showed no further tumor-formation.

On the other hand, B. Schmidt observed at an autopsy, nine months after the removal of a median enlargement, that a new growth had appeared near the site of the one removed; the description strongly suggests a malignant tumor rather than a prostatic myoma, but no microscopical examination is recorded. An important deduction from these considerations is the indication for thorough enucleation of all circumscribed masses within as well as above the general prostatic surface. Such tumors can be enucleated after incision of the mucous membrane with surprising facility; McGill especially has demonstrated the feasibility of this measure in many cases of his extensive experience. Vignard, experimenting upon the cadaver, corroborates this observation; he asserts that in six out of ten cases he has enucleated the entire prostate—hypertrophied or otherwise—with reasonable ease.

A second cause may in time abolish the restored voluntary urination, namely, the supervention of vesical degeneration and loss of contractility. Yet this possibility constitutes an argument for, rather than against, the operation, since the necessary catheterism is facilitated thereby.

The abstract utility of prostatectomy is as yet clinically restricted by the fact that so many patients requiring the operation are when they reach the surgeon too feeble to endure it. For this reason the writer has, for example, refused to advise the operation in several cases; made simple drainage by perineal urethrotomy in five (with one death); and in four others (two fatal), in which the suprapubic incision was imperative for the extraction of a calculus, has declined to interfere with prostatic tumors whose removal presented no mechanical difficulties—simply because the enfeebled condition of the respective patients forbade all operative measures that were not absolutely necessary for immediate relief. In time patients will be educated to the knowledge that danger lies not in the operation but in the delay whereby the urinary organs are disorganized.

Choice of Operation.—The various operations mentioned represent as many stages in the development of surgical conceptions as to the nature and accessibility of the prostatic obstacle. The operations of Mercier and Bottini may doubtless, by a happy chance, secure occasionally complete success, though inapplicable to most cases; perineal incision and excision of prostatic obstructions have a wider range of usefulness, seriously restricted, however, by the mechanical difficulties in the detection and removal of the common intra-vesical growths; suprapubic cystotomy affords satisfactory access to these frequent tumors, but sometimes fails to clear the obstructed urethra; the combined suprapubic and perineal approach seems alone to fulfil every indication in every case. There is, therefore, from the anatomical standpoint, no choice of operation; suprapubic cystotomy, with or without a supplementary *boutonnière*, as the peculiarities of the prostate in a given case may require, is in the abstract *the* operation.

Yet the interests of the patient will, doubtless, sometimes be better served by a compromise with the requirements of his prostate; perineal prostatotomy is perfectly free from anatomical dangers, and, because so quickly completed, involves less peril from the anæsthetic. It is, therefore, safer (mortality 9 per cent. against 16 per cent. by suprapubic prostatectomy); it affords temporary relief in all cases and a radical cure in a fair minority—for which reasons it should, in the writer's opinion, be the operation of choice in feeble patients.

CONSIDERATIONS OF TECHNIQUE.—As to the technique of suprapubic cystotomy, it needs only remark that the Petersen rectal bag has been quite largely abandoned and the modified Trendelenburg position adopted for eliminating the peritoneal fold from the field of operation. The transverse incision of the soft parts and Helferich's partial resection of the symphysis seem to be regarded as unnecessary features. The extreme distention of the bladder formerly considered an essential safeguard is no longer practised, since with the patient in the inclined posture an almost empty bladder can be opened with safety.

An important advance in the removal of prostatic obstruction is the enucleation of all accessible masses in the substance of the organ instead of a simple levelling off of projecting tumors by scissors or cautery; by this means not only the salient middle lobes, but also the no less obstructing, though less obtrusive lateral enlargements, are easily removable. This process of enucleation obviates the necessity for the operation suggested by Dittel, under the title of "lateral prostatectomy."[1] After emphasizing the importance of the neglected lateral lobes in the induction of retention, and criticising Harrison's plan of treating them by prolonged pressure as inefficient, Dittel shows that they can be reached by separation of the rectum from the prostate; and by operation upon a cadaver with lateral enlargement of the prostate, he proved that the excision of portions of the lateral lobes from the rear—without opening the bladder—relieved the prostatic obstruction by permitting the vesical surfaces of these lobes to fall apart. He admits that suprapubic cystotomy would also often be necessary for the removal of intra-vesical obstacles; and that the two operations, even if separated by an interval of weeks, would rarely be sustained by the same subject until patients are educated to submitting to them at an early stage of prostatic disease.

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[1] Wiener med. Woch., No. 19, 1890.

Dittel makes no allusion to the fact that the lateral lobes can be and have repeatedly been removed by enucleation after suprapubic cystotomy. Of the several surgeons who have independently adopted this measure McGill deserves especial mention; in several instances he has enucleated lateral masses weighing from one-half to two ounces. The ingenious operation suggested by Dittel seems, therefore, to have been anticipated by a much simpler, safer, and more practicable means of attaining the same end.[1]

Prolonged retention of a tube in the perineal wound, as advised by Hrrison, has been attended in his and other hands with one unpleasant result—the persistence of a permanent and obstinate fistula.

Wishard, of Indianapolis, has successfully practised a means for obviating this objectionable sequel: When the tube is finally removed he curettes the granulating surfaces, incises the anterior and posterior angles, and closes the entire wound by sutures, drawing the urine by catheter for several days. By this means he secured immediate and complete union after drainage for periods up to eighty-one days. (Personal communication.)

SUMMARY OF TABLE.

To economize space, the writer's original intention to print the tabulated cases, has been deferred.

		Restoration of voluntary urination.		Deaths.	
		Successes.	Failures.	Within 15 days.	15 to 30 days.
Perineal operations, 41	32 uncomplicated . . .	14	4	3	0
	9 complicated with calculus extraction . .	3	3	1	0
	Totals	—17	— 7	— 4	— 0
Suprapubic operations, 88	62 uncomplicated . . .	21	5	7	3
	26 complicated with calculus	8	7	2	0
	Totals	—29	—12	— 9	— 3
By combined incision, 4	. . . .	3	0	0	1
Totals, 133	Totals	—49	—19	—13	— 4

Period of observation after operation during which voluntary urination was maintained (in no case did catheterism again become necessary:

In 7 cases	2 years or more.
" 5 "	18 months to 2 years.
" 3 "	12 to 18 months.
" 9 "	6 to 12 months.
" 5 "	under 6 months.

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[1] At the recent Berlin Congress, Kuester stated that he had in two cases successfully performed the operation as suggested by Dittel.

Results of operation in cases in which the catheter had been indispensable and constantly used for periods varying from a few months to ten years prior to operation:

	Recovery of voluntary urination.	Failure.	Incomplete recovery.	Total.
Perineal operations	13	7	0	20
Suprapubic operations	22	11	2	35
Combined operations	3	0	0	3
Totals	38	18	2	58

Same without calculus or other complication; catheter indispensable for periods varying from six months to seven years prior to operation:

	Recovery of voluntary urination.	Failure.	Total.
Perineal operations	11	4	15
Suprapubic operations	18	5	23
Combined operations	3	0	3
Totals	32	9	41

Causes of death.	Within 15 days.	Between 15 and 30 days.
Shock	4	0
Uræmia (surgical kidneys)	4	2
Pneumonia	2	0
Bronchitis	1	0
Iodoform	1	0
Not specified	2	0
Exhaustion	0	1
Totals	14	3

Form and location of prostatic growths removed:

Median tumors	37	Collar enlargements	7
Lateral tumors	9	Horseshoe enlargements	3
Median and lateral tumors	5	Diffuse enlargements	2
		Total	63

SOME OBSERVATIONS ON THE TREATMENT OF CROUPOUS PNEUMONIA.

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OF PHILADELPHIA.

THE treatment of pneumonia varies with the theories of its nature and pathology held by therapeutists, but can be resolved into three distinct kinds:

1. The expectant method, which consists in the use of remedies of a non-perturbating kind, so that, whilst the natural course of a disease is